

CLAIMS:

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1. A slat for a venetian blind having front and rear longitudinally extending edge portions (3) connected by a main portion (2), where each of said edge portions (3) comprises a first portion (3') extending laterally relative to the main portion (2) and an opposing second portion (4) forming a space (3'') therebetween, said edge portions (3) being furthermore provided with a gap (6), through which gap (6) said space (3'') is accessible from outside, the width of said gap (6) being less than the maximum distance between said first (3') and second (4) portions, characterised in that said gap (6) being used for insertion of attachment means (12, 10 21, 22) into said space (3''), without the attachment means penetrating the slat.
2. A slat for a venetian blind according to claim 1, characterised in that said second portions (4) at the ends hereof facing each other are provided with attachment portions (5) extending towards the lower surface of said main portion (2), and that said gap (6) is provided between 15 the attachment portions (5) and said lower surface.
3. A slat for a venetian blind according to claim 1 or 2, characterised in that said gap (6) has resilient boundaries for facilitation insertion or removal of attachment means through said gap (6).
- 20 4. A slat according to claim 2, characterised in that said bottom portions (4) are substantially planar.
5. A slat according to claim 1, characterised in that said main portion (2) is arched.
- 25 6. A slat according to claim 1, characterised in that said main portion (2) is substantially planar.
7. A slat according to claim 1, characterised in that said main portion (2) is curved or 30 corrugated.
8. A slat according to claim 1, characterised in that the slats (2) are made from a material of the group comprising metal, a composite or fibreglass.
- 35 9. A slat according to claim 8, characterised in that the slats (2) are furthermore covered by veneer.

10. A slat according to claim 1, characterised in that said edge portions (3) are formed as integral parts of said main portion (2).
- 5 11. A slat according to claim 1, characterised in that said edge portions (3) are formed as separate parts for attachment to said main portion (2).
12. A slat according to any of the preceding claim 1 to 11, characterised in that at least one of said slats is provided with a bottom panel (7) formed for releasable insertion into said gabs
- 10 13. A slat according to claim 12, characterised in that said bottom panel (7) is provided with a pattern of passages (8) through the bottom panel.
- 15 14. A slat according to claim 13, characterised in that said passages (8) are substantially circular.
15. A slat according to claim 13, characterised in that said passages (8) are elongated slits.
- 20 16. A slat according to any of the preceding claims 11 to 15, characterised in that the volume (10) formed between the bottom panel (7) and the lower surface of the main portion (2) of the slats is partially or completely filled by an acoustic damping material.
17. A slat according to any of the preceding claim 12 to 16, characterised in that said panel
- 25 18. A slat according to any of the preceding claims 12 to 16, characterised in that said panel (7) is provided with a fabric (9) extending over at least a portion of the bottom panel (7).
19. A slat according to any of the preceding claims 11 to 17, characterised in that said bottom panel (7) is substantially planar.
- 30 20. A slat according to claim 1, characterised in that said edge portions (3) are provided with sealing means for preventing light from penetrating the regions between adjacent slats, when
- 35 21. A slat according to claim 1, characterised in that said edge portions (3) are provided with sealing means for preventing light from penetrating the regions between adjacent slats, when the slats are in one of their substantially vertical positions.

21. An attachment means for releasable attachment of slats according to any of the preceding claims 1 to 20, characterised in that said attachment means (12, 21, 22) is formed for insertion through said gap (6) into said space (3") for engagement with the boundaries (3', 4, 5) of said space (3").

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22. An attachment means according to claim 21, characterised by comprising a central loop portion (16) connected to a first leg portion (15) lying substantially in the plane of the central loop portion (16) and connected to second and third leg portions (14, 13) lying in a plane forming an angle (A) relative to the plane of the central loop portion (16) and the first leg portion (15).

10 23. An attachment means according to claim 21, characterised in that it is formed as a cylindrical rod (23).

15 24. An attachment means according to claim 21, characterised in that it is formed as a sphere (26).

25. An attachment means according to any of the preceding claims 21 to 24, characterised in that it is resilient for facilitation insertion through said gap (6).

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26. An attachment means according to any of the preceding claims 21 to 24, characterised in that it is rigid.

27. A venetian blind for covering large window panels comprising:

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- a plurality of parallel elongated slats according to any of the preceding claims 1 to 20, furthermore comprising:

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- at least two pairs of tilt cords (19) for releasable attachment to said front and rear edge portions (3) of the slats by means of the attachment means (12) according to any of the preceding claims 21 or 22;

- at least two pairs of lift cords (20) running substantially parallel with said tilt cords (19) and attached to the lowermost of said slats.

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28. A venetian blind according to claim 27, characterised in that each of said pairs of tilt cords (19) and said pairs of lift cords (20) are operated by separate lift- and tilt mechanisms (30) provided on a common drive shaft (33) driven for rotation by a common drive means (34).

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29. A venetian blind according to claim 27, characterised in that each of said pairs of tilt cords (19) and said pairs of lift cords (20) are operated by separate lift- and tilt mechanisms (30) provided on a separate drive shaft (33) for each of said mechanisms (30) driven for rotation by separate drive means (34).

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30. A venetian blind according to claim 28 or 29, characterised in that each of said lift- and tilt mechanisms (30) comprises a tubular member (36) mounted for rotation with and axial displacement over said drive shaft (33) and guide means (46) for maintaining the lift cords (20) in their proper axial position and for directing the lift cords (20) to the outer circumferential surface of said tubular member (36), whereby the lift cords (20) upon rotation of said tubular member (36) will become helically wound on or off the circumferential surface of the tubular member (36) resulting in the slats (2) being raised or lowered as the tubular member (36) rotates.

20 31. A venetian blind according to claim 30, characterised in that said tubular member (36) on the outer circumferential surface hereof is provided with a single thread (39) for accommodating each of said lift cords (20) of a given pair of lift cords in the same thread.

25 32. A venetian blind according to claim 30, characterised in that said tubular member (36) on the outer circumferential surface hereof is provided with a double thread for accommodating each of said lift cords (20) of a given pair of lift cords in separate threads hereof.

30 33. A venetian blind according to claim 31 or 32, characterised in that said single/double thread provided on the outer circumferential surface of the tubular member (36) being in engagement with a corresponding thread (44) in a stationary bearing (40) supporting the tubular member (36).

34. A venetian blind according to claim 31, 32 or 33, characterised in that said thread(s) is(are) trapezoidal.

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35. A venetian blind according to claim 34, characterised in that a gap (45) is formed between said thread(s) on the tubular member (36) and on the stationary bearing (40) for accommodation of the lift cords (20) is said gap (45).

5 36. A venetian blind according to any of the preceding claims 28 to 35, characterised in that said lift- and tilt mechanism (30) comprises tilt means for connection to the tilt cords (19) of a given pair of lift- and tilt cords, said tilt means comprising a cylindrical tilt house (41) provided coaxially about said drive shaft (33) for co-rotation herewith, around the outer circumferential surface of which tilt house (41) there is provided a tilt member (42) following said rotation of
10 the tilt house (41) due to friction between the tilt member (42) and the tilt house (41) over a predetermined angular range determined by first means (48, 49) provided on the tilt member (42) during said rotation being broad into contact with corresponding stationary abutment means (50, 51), where said tilt cords (19) are wound around said tilt member (42), so that rotation of the tilt member (42) in one direction makes one tilt cord of the given pair of tilt
15 cords unwind from the tilt member (42) and the other tilt cord of the given pair of tilt cords wind upon the tilt member (42).

37. A venetian blind according to claim 36, characterised in that said tilt member (42) is radially resilient.

20 38. A venetian blind according to claim 37, characterised in that said tilt member (42) is provided with an axially extending gap (47).

25 39. A venetian blind according to any of the preceding claims 36, 37 or 38, characterised in that said tilt member (42) is a tubular member comprising a main portion (54) and a collar (53) defining an intermediate groove (52) for accommodating the tilt cords (19).

30 40. A venetian blind according to any of the preceding claims 37, 38 or 39, characterised in that the ends of the each of the tilt cords (19₁, 19₂) are attached to the tilt member (41) at points (56, 57) lying substantially diametrically opposite each other on the tilt member (42) and that the tilt cords are wound in opposite directions on the tilt member (42).

41. A venetian blind according to claim 28 or 29, characterised in that said drive means (34) is/are a motor/motors fixedly accommodated within said drive shaft(s) (33).

42. A venetian blind according to claim 27, characterised in that each of said lift cords (20) passes through loops (18) attached to the corresponding lift cord (19), whereby the lift cord (20) is running substantially parallel with the corresponding tilt cord (19).

5 43. A venetian blind according to claim 27, characterised by comprising two pairs of lift- and tilt cords (19, 20), the points of attachment of each of said pairs (19, 20) to the slats (2) being at a distance from either longitudinal end of the slat (2) corresponding to substantially 1/5 of the total length of the slat (2).

10 44. A venetian blind according to any of the preceding claims 28 to 35, characterised in that said lift- and tilt mechanism comprises tilt means for connection to the tilt cords (19) of one or more pair(s) of lift- and tilt cords, said tilt means comprising a tilt drum (60) provided coaxially about said drive shaft (33) for co-rotation herewith, around the outer circumferential surface of which tilt drum (60) there is provided a tilt member (61) following said rotation of the tilt drum (60) due to friction between the tilt member (61) and the tilt drum (60) over a predetermined angular range determined by first abutment means (63) provided on the tilt member (61) during said rotation being brought into contact with an abutment tongue (65) provided on a rotatable abutment ring (64) such that a further rotation of the tilt drum (60) will result in the rotatable abutment ring (64) rotating around the tilt drum (60) until further 15 rotation is being prevented by engagement of a portion of the rotatable abutment ring (64) with a stationary abutment means (68), where said tilt cords (19) are wound around said tilt member (61), so that rotation of the tilt member (61) in one direction makes one tilt cord of the given pair of tilt cords unwind from the tilt member (61) and the other tilt cord of the given pair of tilt cords wind upon the tilt member (61).

20 25 45. A venetian blind according to claim 44, characterised in that said tilt member (61) is radially resilient.

30 46. A venetian blind according to claim 44, characterised in that said tilt member (61) is provided with an axially extending slit (62).

35 47. A venetian blind according to any of the preceding claims 44, 45 or 46, characterised in that the ends of each of the tilt cords (19₁, 19₂) are attached to the tilt member (61) at points lying substantially diametrically opposite each other on the tilt member (61) and that the tilt cords are wound in opposite directions on the tilt member (61).

48. A venetian blind according to claim 44, characterised in that said portion of the rotatable abutment ring (64) is provided with circumferentially spaced end faces (67) such that the circumferential extension of said portion is used to set the rotation range of the tilt member (61) around the tilt drum (60).

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49. A venetian blind according to claim 27, characterised in that support cords (71) are provided at each longitudinal end of the slats (2) for engagement with the slats, whereby the stability of the venetian blind is increased.

10 50. A venetian blind according to claim 49, characterised in that said support cords are passed through passages (73) provided in support members (72) provided at the longitudinal ends of the slats (2).

15 51. A venetian blind according to claim 49 or 50, characterised in that the slats (2) are provided with end caps (74) for attachment of the support members (72) to the slats (2).

52. A venetian blind according to claim 50 or 51, characterised in that lift cords (20') are running parallel with said support cords (71) and passed through passages (75) in support members (72) provided at the longitudinal ends of the slats (2).

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53. A slat for a venetian blind according to claim 1, characterised in that the slat at either longitudinal end hereof is provided with a support member (72) for guiding support cords (71) passed through the support member (72).